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The price balancing act

By Chad Hart, extension economist, 515-294-9911, chart@iastate.edu

Crop price movements over the past few months have been volatile and often in opposite directions. Drought and other global weather issues have pushed prices higher, but projected supplies remain high and usage has eased off slightly to relieve a lot of that price pressure. So the markets have bounced up and down, through several waves of information. With each bounce, the price range has become a bit tighter. In May, the futures-based season average price for corn for 2021 sourced as high as \$6 per bushel and dropped as low as \$4.80. In June, the range shrank to a dollar (\$4.80 to \$5.80). In July, the range was 60 cents (\$4.90 to \$5.50), with the majority of the month between \$5.10 and \$5.30 per bushel. Soybean prices have followed a similar pattern. The highs have been pressed out as production estimates remain robust. The lows have moved up some as usage continues to hold through the higher prices of this summer.

While this pattern has provided more stable pricing over the past month, that stability could dissipate quickly. As we move toward harvest, there are a few critical factors to watch for signs of significant price shifts. On the supply side, the crop condition ratings can be a leading indicator. For the demand side, advance export sales often signal changes. Let's look at where these indicators stand currently.

The United States Department of Agriculture's weekly Crop Progress reports provide the crop condition ratings. These weekly grades for the crops mostly based on a "windshield" are inspection of the crops (how do the crops look as you travel around the countryside), but they do have a strong correlation with the final crop yields ultimately reported by USDA. Typically, ratings above the five-year average are linked with yields above trend.

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Handbook updates

For subscribers of the handbook, the following updates are included.

2021 Corn and Soybean Commodity Loan Rates – A1-34 (2 pages)

Current Crop Insurance Policies – A1-48 (10 pages)

Iowa Farmland Rental Rates, 1994-2021 (USDA) – C2-09 (1 page)

Fixed Bushel Rent – C2-32 (2 pages)

Please add these files to your handbook and remove the out-of-date material.

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Inside . . .

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Extension and Outreach

Ag Decision Maker is compiled by extension ag economists Ann Johanns, aholste@iastate.edu extension program specialist The price balancing act, continued from page 1

Figures 1 and 2 show the corn and soybean crop condition ratings for 2020 and 2021, along with the five-year average and the range of ratings since 1986. For corn, this year's ratings started off strong with the early planting push, but the drought quickly knocked those ratings down below the five-year average. Starting in mid-June, the national corn crop had a "Good to Excellent" rating for roughly twothirds of the crop. And that rating has slowly descended to 62% by the end of July, keeping it steadily but slightly below the five-year average. Looking forward, the fiveyear average rating tends to drop a couple more points as we approach harvest, so we might see the same for the ratings in 2021. However, traders will be watching to see if we get a similar rating shift to 2020. Last year, the drought did not fully show up in the ratings until late August and early September (weeks 33-35), when the 2020 crop went from being rated slightly above average to slightly below. The shift in ratings eventually paralleled a shift in the national corn yield, from the July estimate of 178.5 bushels per acre to the final estimate of 172 bushels per acre.

The storyline for soybeans is similar to corn. The first rating was high, based on early planting. But subsequent ratings were lower as the drought was factored in. Relative to the five-year average, the 2021 crop has been holding steadily but slightly below average.

And just like with corn, the concern is we could see another slide, like in 2020. During August and September, the five-year average rating drops only a point or two. In 2020, the decline was 10 points. Last year, that decline brought the soybean crop rating back down to the average. If we get the same

Figure 1. US corn crop condition ratings

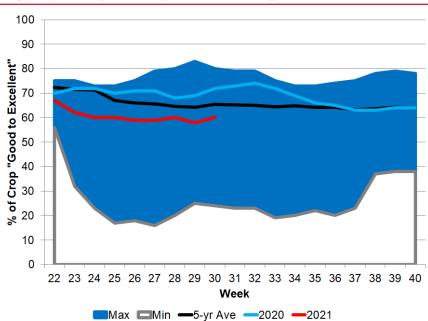
100
90
80
70
60
30
20
10
0
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

Week

■Max ■Min --5-yr Ave --2020 --2021

Source: USDA NASS

Figure 2. US soybean crop condition ratings



Source: USDA NASS

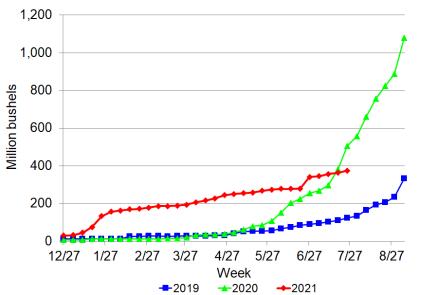
size decline this year, the rating moves from slightly below average to substantially below. Based on historical relationships, each point swing of "Good to Excellent" rating translates to roughly a 0.2 bushels per acre change on the national soybean yield. So while the ratings have been fairly steady thus far, there could be additional market fireworks ahead.

The price balancing act, continued from page 2

Another weekly report from USDA gives frequent updates on the demand picture. The Foreign Ag Service (FAS) in USDA publishes a weekly export sales report. It details the sales and shipments of ag products over the course of the marketing year. Within the report, FAS also tracks advance purchases by international buyers for the upcoming crops. And just like with the crop ratings, we will be watching for movements similar to last year. Figures 3 and 4 display the advance export sales for soybeans and corn. Soybeans started off the 2021 calendar with some large early purchases. By the time farmers were filling out their prospective planting surveys in March, international buyers, mainly China, has stepped up and purchased over 200 million bushels of soybeans. However, that early surge did not last and sales fell back to a more usual pace throughout the spring and early summer. It was during the latter half of last summer when soybean export sales took off and reached over a billion bushels before harvest. Currently, we are not seeing that same intensity this year. While USDA's projections show a pullback in international demand for the 2021 crop, the outlook still points to a strong export year, the fourth largest ever. But the sales will need to start moving soon.

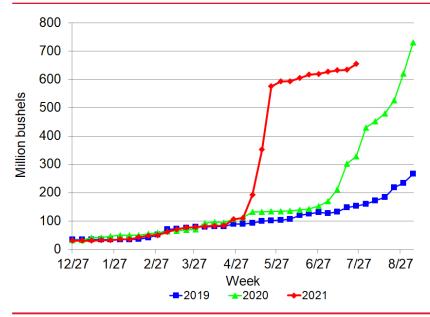
As soybean sales have slid below last year's pace, corn sales continue to exceed last year. In 2020, the international surge began in July, with sales exceeding 700 million bushels by harvest. This year, the surge came in early May. Over a three week period, roughly 500 million bushels of corn were locked up for export, well ahead of normal sales patterns. Chinese purchases represent the

Figure 3. US soybean advance export sales



Source: USDA FAS

Figure 4. US corn advance export sales



Source: USDA FAS

vast majority of the sales, with Mexico and Japan picking up much smaller amounts. Since that surge, corn export sales have returned to a normal pacing throughout the summer. As with soybeans, 2021 corn exports are expected to be lighter than 2020 exports. However, 2021 is also still expected to be the second best export year ever.

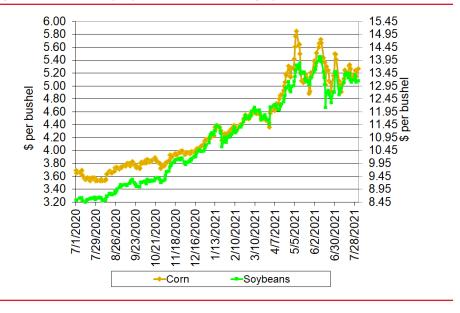
The price balancing act, continued from page 3

For the past month, the crop ratings and the advance export sales have both followed their average patterns over time. The lack of movement in them has allowed price swings to dampen and price levels to settle towards the lower end of the range. Over the past three weeks, corn futures have pointed to a 2021-2022 season-average price in the low \$5 range, with soybeans coming in around \$13 per bushel. Continued stability in the crop ratings and advance sales will translate into a continued drifting of prices lower. However, if we see shifts similar to last year in either ratings or sales, it would reintroduce some upside potential for both markets.

August is not a time when farmers are actively selling crops. Those who typically pre-harvest market have already made the sales and those who don't pre-harvest are waiting for the crops to come in. This year's markets have been encouraging for farmers of all types as prices have grown and held well above the levels over the past several years. As Figure 5 shows, last year at this time, corn futures were signaling an average price around \$3.60 per bushel. Soybean futures pointed to an average price below \$9 per bushel. So even while we're at the lower end of the recent trading range, the price outlook is still historically very strong.

Figure 5. 2021-2022 projected season-average prices (Derived from futures)

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The power of carbon dioxide

By Don Hofstrand, retired extension value-added agriculture specialist Reviewed by Eugene Takle, retired professor emeritus Iowa State University

This article is the sixth in a series focused on the causes and consequences of a warming planet

Carbon dioxide has been a driver of the world's climate for millions of years. It is a greenhouse gas that absorbs heat radiated upward from the earth and holds the heat in the lower atmosphere. So, carbon dioxide in the atmosphere helps to warm the earth to a comfortable temperature.

A problem arises when too much carbon dioxide is in the atmosphere. The earth gets warmer than we want. We cannot blame this on Mother Nature. Left to nature there would be just the right amount of carbon dioxide in the atmosphere. Through our activities, the amount of carbon dioxide in the atmosphere has expanded, causing the earth's temperature to rise which in turn causes the climate to change. For example, each us contributes about 16 tons of carbon dioxide to the atmosphere each year.

The power of carbon dioxide, continued from page 4

Carbon dioxide is the most prevalent long-lived greenhouse gas. Carbon dioxide emissions come from decomposed plants and animals stored deep in the earth. The carbon is brought to the earth's surface where it is emitted into the atmosphere through the process of burning. The carbon can be in a solid form (coal), liquid form (crude oil), or gaseous form (natural gas).

While the pre-industrial atmospheric carbon dioxide concentration was about 280 parts per million (ppm), current measurements show the concentration is 416 ppm. The previous high in carbon dioxide during the last 800,000 years was 300 ppm. With strong economic growth and no limits on carbon dioxide emissions, scientists predict atmospheric concentration could reach 600 ppm by 2050. In addition, once carbon dioxide is emitted, it can stay in the atmosphere for centuries.

Carbon dioxide has an important natural cycle that does not add to the atmospheric concentration and is critical for plant life on earth. Crops, trees and other plants use the process of photosynthesis to grow and flourish. Photosynthesis takes carbon dioxide from the air and uses it to build the plant. When the plants die and decompose, the carbon dioxide is released back into the atmosphere.

So, the flowers in your back yard take carbon dioxide out of the air in the spring and summer when they grow and release it back into the atmosphere when they die in the fall. But this annual fluctuation should not be confused with the long-term upward trend in atmospheric carbon dioxide over many years.

See the <u>Ag Decision Maker website</u> for more from this series, www.extension.iastate.edu/agdm/energy.html#climate.

Crop insurance coverage-frequently asked questions

By Iowa State University Farm Management Field Specialists, agdm@iastate.edu

Iowa State University Extension and Outreach Farm Management Specialists, www.extension. iastate.edu/ag/farm-management, provide expertise regarding crop insurance and adverse events.

Losses due to adverse weather conditions such as hail, frost, freeze, wind, drought, and excess moisture are insurable losses under multiple peril crop insurance. In 2021, the impact of drought conditions has continued for much of Iowa. Losses due to drought are an insurable loss under multiple peril crop insurance.

Another dynamic added to the mix is yield loss due to chemical drift, which is not a covered loss under multiple peril crop insurance.

Question: How many of lowa's corn and soybean acres are covered by crop insurance?

Iowa farmers planted 23 million acres of corn and soybeans in 2021. Approximately 90% of those acres have been insured using Revenue Protection (RP) multiple peril crop insurance. These insurance policies can guarantee various levels of a percentage



of the farm's average yield times the higher of the projected price (average futures price in the month of February) or the harvest price (average futures price during the month of October), using the November 2021 futures contract for soybeans and the December 2021 futures contract for corn. Most farm operators carry a guarantee of their APH from 65% to 85% level of coverage. The projected prices (futures average prices in February 2021) were \$4.58/bu for corn and \$11.87/bu for soybeans, respectively.

Crop insurance coverage-frequently asked questions, continued from page 5

Question: What should an insured farmer do once a crop loss is recognized?

- 1. Notify the insurance agent within 72 hours of the discovery of damage, but not later than 15 days after the end of the insurance period. A notice of loss can be made by phone, in writing or in person. Although drought loss is not immediate, farmers should contact their agent as soon as they feel a loss is present.
- 2. Continue to care for the crop using good farming practices and protect it from further damage, if possible.
- 3. Get permission from the insurance company, also referred to as your Approved Insurance Provider (AIP), before destroying or putting any crop to an alternative use.

Question: Who will appraise the crops and assess the loss?

The crop insurance company will assign a crop insurance adjuster to appraise the crop and assess the loss. The insured farmer must maintain the crop until the appraisal is complete. If the company cannot make an accurate appraisal, or the farmer disagrees with the appraisal, the company can have the farmer leave representative sample areas.

These representative sample areas of the crop are to be maintained—including normal spraying if economically justified—until the company conducts a final inspection. Failure to maintain the representative sample areas could result in a determination that the cause of loss is not covered. Therefore, no claims payment to the producer.

Once appraised the crop can be released by the company to be:

- 1. Destroyed through tillage, shredding, or chemical means; or
- 2. Used as silage or feed.

Question: Once released, may I harvest my corn as silage for feed?

Check with your crop insurance company. In a county where corn can be insured as grain only, the corn will be released, or harvested as silage or sold as feed. Any grain will be counted as production for your claim. In a county where corn can be insured as silage, the harvested silage will be counted as production.

Question: What is the difference among insurance units?

Many farmers have chosen to insure their crops using enterprise units in order to pay less expensive insurance premiums. Under enterprise units, losses are calculated by crop by county. Therefore all the corn planted by a farmer in a given county would be added together to determine a loss. If a farmer has chosen optional units, then losses are calculated by crop by field unit. Premiums are typically higher if choosing optional units but a good yield on one field does not cancel out the loss on another field.

Question: When will farmers be receiving indemnity payments for their crop insurance losses?

Adjusters will be busy with the increase in losses in areas that have been impacted. As soon as you are finished harvesting, notify your insurance agent and an adjuster will be assigned to you. Insurance companies cannot defer payments to the next tax year, but claims adjusted late in the year may not be paid out until the following year.

Question: What is the maximum price that the harvest time indemnity price (average October futures price) can reach?

The maximum harvest indemnity price values for 2021 are twice of the projected price; or \$9.16/ bushel for corn and \$23.74/bushel for soybeans, respectively.

Question: Can indemnity payments be deferred for income tax purposes until 2022?

A taxpayer using the cash method of accounting claims the income in the year they receive the payment. The insurance company will send the insured a 1099 form showing the amount and tax year to report the income.

A farmer, if they are using the cash method of accounting for reporting taxes, can elect to defer crop insurance payments if the loss is due to yield loss and they normally sell more than 50% of their crop the year following harvest. They cannot defer any loss that is due to price loss. Farmers who are using the accrual method of accounting for reporting taxes cannot defer crop insurance payments.

Crop insurance coverage-frequently asked questions, continued from page 6

Question: Will I be asked to provide proof of my bushels this year for crop insurance verification?

All multiple peril crop insurance users are subject to production verification on a random basis. If a claim that exceeds \$200,000 is filed for an individual crop and policy, verification of production is automatically required by regulation. This also requires a three-year audit.

Additional Resources

Ag Decision Maker Crop Insurance Files, www.extension.iastate.edu/agdm/cdcostsreturns. html#insurance

Managed Haying or Grazing of CRP Acres, www.extension.iastate.edu/agdm/livestock/html/b1-60.html

<u>ISU Extension and Outreach Drought Resources</u>, www.extension.iastate.edu/disasterrecovery/drought

Special Rule for Taxing Crop Insurance and Disaster Payments, www.calt.iastate.edu/blogpost/special-rule-taxing-crop-insurance-and-disaster-payments

RMA Crop Insurance and Drought-Damaged Crops, www.rma.usda.gov/en/News-Room/Frequently-Asked-Questions/Crop-Insurance-and-Drought-Damaged-Crops

RMA Extends Deadlines, Waives Interest
Deferral for Emergency Drought Relief,
www.rma.usda.gov/News-Room/Press/PressReleases/2021-News/RMA-Extends-DeadlinesWaives-Interest-Deferral-for-Emergency-DroughtRelief

RMA Authorizes Emergency Procedures to Help Drought-Impacted Producers, www.rma.usda. gov/News-Room/Press/Press-Releases/2021-News/RMA-Authorizes-Emergency-Procedures-to-Help-Drought-Impacted-Producers



Avoid misinterpreting year-to-year cattle inventory changes

By Lee Schulz, extension livestock economist, 515-294-3356, lschulz@iastate.edu

Cattle inventories and markets move both seasonally and cyclically. Analysts often start with year-over-year comparisons. Doing so removes the impact of seasonality, but focusing on only two points in time can skew perceptions by ignoring broader trends.

The baseline you choose matters. Comparing July 2021 values to July 2020 values may overstate inventory changes. COVID-19 created a backlog of cattle last summer. That could have altered weaning, backgrounding, replacement, culling and marketing decisions, which could have inflated, or deflated, some inventory numbers.

Choosing a baseline other than "a year ago" is a remedy. Using a more "normal" year or an average over several recent years can prove useful for some comparisons.

While some years appear to not "fit" the cattle cycle, the cycle still exists. But during outlier years, outside forces have an overriding influence on producer decisions.

Prices tend to vary inversely, though not perfectly, with cattle numbers. As inventories decline cyclically, prices are expected to increase. Iowa fed cattle prices were 25% higher in July 2021 than in July 2020. Feeder cattle prices were 14% higher. Cull cow prices were similar to a year earlier. Certainly all else was not equal when comparing 2020 and 2021.

Cyclical contraction continues

USDA's mid-year Cattle report based on data gathered from producers by the National Agricultural Statistics Service shows July 1, 2021 beef cow numbers down 2.0% from July 1, 2020, 2.8% below July 1, 2019 and the smallest since 2015, which was the second year of the current cattle cycle (Table 1). Note, USDA suspended the mid-year Cattle report in 2013 and 2016 due to federal government sequestration.

One of the more surprising 2021 mid-year numbers was the 2.3% drop in beef heifers kept for replacement compared to 2020. Fueled by COVID-19, the number of heifers entering the

Avoid misinterpreting year-to-year cattle inventory changes, continued from page 7

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herd during the first half of 2020 surged 6.8% compared to 2019's first-half entrants. Strong cow prices may have enticed some producers to keep heifers and sell cows. Comparing to the relatively high base last year suggests that contraction may not be as severe as the first glance at the figures might suggest.

Several factors drive inventory dynamics. Some are: the financial condition of producers, weather (feed availability), and consumer demand both domestically and internationally. Weather patterns, especially drought, can shift inventories into feedlots or extend cow herd liquidation.

Thousand Head Avg. 2015-19 ···· 2020 —2021

80
75
70
65
60
55

JUL

OCT

Source: USDA-AMS & USDA-NASS

APR

Table 1. US Cattle Inventory by Class and Calf Crop

July 1 inventory *	2019	2020	2021	2021 as % of 2019	2021 as % of 2020
Cattle and calves	102,600.0	102,200.0	100,900.0	98.3	98.7
Cows and heifers that calved	41,600.0	41,400.0	40,900.0	98.3	98.8
Beef cows	32,300.0	32,050.0	31,400.0	97.2	98.0
Milk cows	9,300.0	9,350.0	9,500.0	102.2	101.6
Heifers 500 pounds and over	16,300.0	16,200.0	16,000.0	98.2	98.8
For beef cow replacement	4,400.0	4,400.0	4,300.0	97.7	97.7
For milk cow replacement	4,100.0	4,000.0	4,100.0	100.0	102.5
Other heifers	7,800.0	7,800.0	7,600.0	97.4	97.4
Steers 500 pounds and over	14,600.0	14,700.0	14,500.0	99.3	98.6
Bulls 500 pounds and over	2,100.0	2,100.0	2,100.0	100.0	100.0
Calves under 500 pounds	28,000.0	27,800.0	27,400.0	97.9	98.6
Feeder cattle outside feedlots	36,800.0	36,700.0	36,100.0	98.1	98.4
Cattle on feed	13,600.0	13,600.0	13,400.0	98.5	98.5
Calf crop **	35,591.6	35,135.5	35,100.0	98.6	99.9

^{* 1,000} head, ** First half of 2021 estimate plus second half of 2021 expectations. Data Source: USDA-NASS.

Full report: https://downloads.usda.library.cornell.edu/usda-esmis/files/h702q636h/00000x79r/5h73qs44s/catl0721.pdf

Avoid misinterpreting year-to-year cattle inventory changes, continued from page 8

Deteriorating corn crops and pastures in many cattle producing states is not new news. Still, drought effects on cow slaughter have become more apparent. Year-to-date federally inspected beef cow slaughter is larger than a year ago by 162,051 head or 8.9% (Figure 1). Compared to the same period in 2019, it's up 224,986 head or 12.8%. The second quarter of 2021 was the largest second quarter beef cow slaughter figure since 2010, and that's after quite large 2020 fourth quarter and 2021 first quarter values.

However, the sizable surge in beef cow slaughter does not necessarily mean a severe beef herd liquidation is underway. After all, the beef cow inventory is larger than at the beginning of the current cattle cycle, so a larger supply of cull cows are available.

Let the data tell the story

Other indicators help monitor the stage of the cattle cycle. Although no single indicator is perfect, using several indicators together can provide insight into the current cattle cycle.

The ratio of beef cow slaughter so far in 2021 versus the January 1 beef cow inventory is 6.4% compared to 5.8% in 2020 and 5.6% in 2019. A 6.4% mid-year culling rate is typical for a contraction phase of the cycle. During the 2010 to 2013 contraction, the ratio of beef cow slaughter in the first seven months of the year averaged 6.3% of the January 1 inventory.

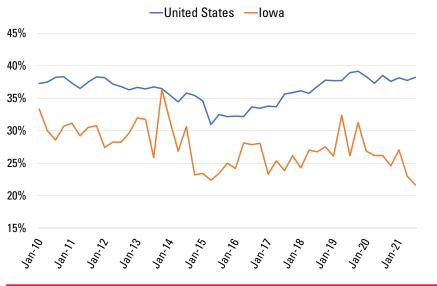
Heifer retention helps key future slaughter and beef production. Attractive prices enticing producers to retain heifers reduces fed cattle slaughter and beef production over the succeeding couple of years, further buoying prices. Shortened fed cattle supplies persist until calves from those extra heifers grow to slaughter weight. This process usually takes at least two years. Growth in beef production outpacing demand weakens prices. In response, producers liquidate heifers. Short-run beef production climbs, which can put more downward pressure on prices. Eventually, liquidation slows, supply falls short of demand, and the cattle cycle turns.

So far in 2021 heifer slaughter has been 7.6% higher than last year. But compared to the first seven months of 2019, heifer slaughter is up only 2.4%.

The mix of heifers on feed as a percent of the total cattle on feed remains similar to rates seen at the top of the last cattle cycle. The July Cattle on Feed report for feedlots with capacity of 1,000 or more head indicated heifers were 38.2% of the on feed mix (Figure 2). In July of 2019 and 2020, it was 38.9% and 38.5%, respectively. Typically, the ratio of heifers on feed needs to decline in order to retain enough heifers to first stabilize, and then to increase, the size of the cow herd. The percent of heifers on feed declined substantially from 2012 to 2015. That decline has yet to occur in the current cycle.

So far in 2021, beef cow slaughter in Iowa, Kansas, Missouri and Nebraska is up 1.4% from the same period in 2020, but 2.4% lower than in 2019. Heifer slaughter is 6.6% higher compared to 2020, but 0.4% lower than in 2019. These moderated volumes suggest producers in this region may be freshening the herd with younger cows. In Iowa, 21.7% of the current cattle on feed in 1,000 head or more capacity feedlots are heifers. This is the lowest percentage for any quarterly estimate in the history of the data back to 1992. The lowest before this was in April 2015.

Figure 2. Heifers as Percentage of Total Cattle on Feed US, Quarterly, 1,000+ head capacity feedlots



Source: USDA-NASS

Avoid misinterpreting year-to-year cattle inventory changes, continued from page 9

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Predicting the peak or trough

There are several factors that might provide incentives for some cattle producers to behave differently, or counter cyclically, compared to other producers. Counter cyclical behavior basically means that producers would retain more heifers and/or cows than usual when cattle inventories are at or near the high point of the current cycle under the assumption that prices will soon rise. On the flip side, they would sell more breeding females than usual when cattle inventories are at or near troughs in the cycle assuming that prices will soon decline. Factors that can incentivize counter cyclical actions include:

- Having a significantly lower cost to produce calves than others.
- Holding an opinion that prices for breeding females near the top of the cattle cycle are undervalued. Or, overvalued near the bottom of the cycle.
- Having a different attitude toward risk than other producers.

Knowing the stage and trajectory of the cattle inventory cycle can help producers plan long-run strategies for their businesses. Producers need to be able to forecast, with a reasonable degree of certainty, the future path of prices during a cattle cycle.

Several factors complicate forecasting. First, every inventory cycle is different. Inventory cycles typically last about 11 years. However, some cycles have been as long as 14 years and some as short as nine years. Second, supply and demand shocks continuously hit the market making it difficult to judge price movements purely by changes in cattle inventory.

Updates, continued from page 1

Internet Updates

The following Information Files and Decision Tools have been updated on www.extension.iastate.edu/agdm:

Economic Analysis of Foliar Fungicide Treatment on Corn – A1-81 (3 pages)

Economic Analysis of Foliar Fungicide Treatment on Corn – A1-81 (Decision Tool)

Risk Management Options for Dairy Producers – B1-53 (5 pages)

Risk Management Options for Dairy Producers - B1-53 (Voiced Media, https://vimeo.com/554495982)

Farm Employee Management: Employment Eligibility Verification - The Basics of Form I-9 Compliance - C1-77 (2 pages)

Current Profitability

The following profitability tools have been updated on www.extension.iastate.edu/agdm/info/outlook.html:

Corn Profitability – A1-85

Soybean Profitability - A1-86

Iowa Cash Corn and Soybean Prices - A2-11

Season Average Price Calculator - A2-15

Ethanol Profitability - D1-10

Biodiesel Profitability - D1-15

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